Role of Inflammatory Cytokines in Obese and Nonobese Diabetic Children

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ABSTRACT

BACKGROUND:
Obesity is an expanded health problem worldwide and it is blamed for a startling rise in type 1 diabetes (T1DM), the interaction between obesity, autoimmune processes, and glucose homeostasis is a growing field of study.

AIM:
This study was undertaken to predict the role of the inflammatory cytokines (interleukin [IL]-17 and IL-10) as biomarkers in early screening for obesity and T1DM and to determine the relation of inflammatory cytokines with diabetic complications especially nephropathy.

SUBJECTS AND METHODS:
The target group consisted of 92 children with type 1 diabetes children who were diagnosed according to the criteria provided by American Diabetes Association Diabetic; cases were divided into two groups, Group 1 (overweight and obese diabetics) and Group 2 (normal weight diabetic children). The levels of serum IL-17 and IL-10 were assayed in these children by an enzyme-linked immunosorbent assay. Serum triglycerides (TG) and cholesterol levels were measured as well as urinary microalbumin level was estimated for detection of nephropathy.

RESULTS:
Diabetic overweight and obese children exhibited significantly 3.8 folds more at risk to be bad glycemic control than diabetic children with normal body mass index (BMI). Furthermore, overweight and obese diabetic children displayed significantly 15 times more at risk of having nephropathy than diabetic children with normal BMI. Low serum level of IL 10 and high level of IL 17 showed a significant association with high BMI in diabetic children. High HBA1c, low IL 10, and long disease duration were significantly considered as predominant risk factors for diabetic nephropathy in diabetic children.

CONCLUSION:
The obtained data from these investigations proved that overweight and obese children have a low serum level of IL-10 and high serum IL-17 levels. The relationship between IL-10/IL-17 can be applied as a good marker for the inflammatory state and these inflammatory interleukins can be employed as biomarkers in early screening for obesity and T1DM. Furthermore, these interleukins can be utilized as a predictor for early diabetic complications, particularly nephropathy.

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